

REMARKS/ARGUMENTS

Applicants thank Examiner Aftergut for the helpful and courteous discussion of March 8, 2005. During the discussion Applicants' U.S. representative presented arguments that the prior art of record does not disclose or suggest a method as claimed in the present claims. The Examiner appeared to indicate that a method wherein only three unconnected layers of threads are made may be patentable pending a search of art class 26 for textile manufacturing method.

The present specification describes a method for making composite sheets. The method allows the manufacture of a composite sheet of simple structure. The claimed method provides advantages with regards to the cost and complexity of manufacturing composite sheets (see page 3, lines 11-33).

Independent Claim 30 has been amended to limit the order and structure of threads in the first and second combination of threads. In the presently claimed process the layers of the second combination of threads, represented by the moving bundle of threads, the second layer of threads and the second bundle of parallel threads, must remain unconnected from one another.

In the Office Action of August 2, 2004, the Office rejected the claims as obvious or anticipated in view of patents to O'Connor (U.S. 4,800,113) and Whisler (U.S. 5,965,262).

Applicants submit that amended independent Claim 30 is novel and not obvious in view of the prior art relied upon by the Office.

The invention of O'Connor is described as follows:

In accordance with the invention, I have discovered that fiber reinforced articles can be prepared by weaving thermoplastic fiber together with reinforcing fiber and thereafter melting the thermoplastic whereby intimate contact between the reinforcement material and the thermoplastic "matrix" is achieved. In a further embodiment of this invention, a hybrid yarn containing individual filaments of thermoplastic material

and reinforcement material can be prepared, woven into a fabric or chopped and layed up as a batt of non-woven fibers.

Applicants submit that a process for forming a composite sheet wherein the sheet contains only unconnected three layers cannot be anticipated or rendered obvious by a prior art method, such as that described in O'Connor, that requires interconnecting or weaving fibers of different layers with one another.

Applicants respectfully request the withdrawal of the rejections in view of O'Connor.

In the Advisory Action of January 14, 2005, the Office stated:

The claim as presented does not exclude the lap of threads from extending on either side of the first bundle of fibers in the combining step as presented in claim 30 on lines 4-7. In other words the lap of threads applied could be applied to both sides of the unidirectional fiber sheet as was performed in Whisler. Additionally, Whisler suggested that one skilled in the art would have added additional reinforcement to the assembly, and therefore clearly suggested a four layer assembly where a unidirectional layer of fibers was disposed on the exterior of an assembly which included a lap of fibers on either side of a unidirectional core. The claims do NOT require a three layer structure which is only unidirectional fibers, a lap of fibers only on one side of the unidirectional fibers and another layer of unidirectional fibers disposed on top of the lap.

Applicants submit that present Claim 30 requires that the threads of the moving bundle are arranged in only three distinct layers. The threads of the three layers are separate and unconnected from the threads of the other layers. The first layer comprises the moving bundle of threads, the second layer comprises the lap of threads and the third layer comprises the second bundle of parallel threads. In present independent Claim 30 it is not possible for the lap of threads to extend and "wrap around" the first bundle of fibers because by doing so they would necessarily form an additional layer that would not be in conformance with the structure required by the claim (i.e., a structure having only a first, a second, and a third layer).

Applicants also draw the Office's attention to new dependent Claim 55 which requires that the fibers of the first, second and third layers of the present process are continuous fibers. The new dependent claim requires that the layers are made of continuous threads thereby excluding chopped threads or strands. Applicants submit that the processes of the prior art relied upon by the Office that include the use of a chopped thread cannot render obvious or anticipate the subject matter of dependent Claim 55 which requires that the threads of all the layers (e.g., the threads of the first, second and third layers) are continuous fibers.

With regards to Vane (U.S. 5,445,693), Applicants submit that Vane requires that the prior art thread layers are stitched together (see Abstract). In the Advisory Action the Office cited to column 2, lines 57-62 of Vane as support that a three layer structure of a composite sheet is known. However, Vane requires that the prior art layers are stitched together to hold the layers in fixed relation to one another (see column 5, lines 53-56). Such stitching is excluded from the present process because the threads of the first, second and third layers must remain unconnected from the threads in any other layer. Applicants therefore submit that those of ordinary skill in the art would have no reasonable expectation of success in arriving at the presently claimed invention which excludes the stiched structures of Vane.

As discussed above, Applicants submit that present independent Claim 30 is novel and not obvious in view of O'Connor at least on the grounds that O'Connor requires stitching or connectivity between layers of threads. Applicants submit the presently claimed invention is novel and not obvious in view of Whisler and/or Vane on the grounds that the present process produces a composite sheet having only three layers of threads that are unconnected and only one surface of the first bundle of threads is in contact with the lap of threads.

Applicants submit that the other prior art references cited by the Office do not cure the defects of O'Connor and/or Whisler and cannot anticipate or render obvious the present claims alone or in combination with O'Connor or Whisler.

Application No. 10/068,857  
Reply to Advisory Action of January 14, 2005  
and the Office Action of August 2, 2004

Applicants submit all now-pending claims are in condition for allowance. Applicants respectfully request the withdrawal of the rejections and allowance of all now-pending claims.


Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon

Customer Number

22850

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 06/04)



---

Stefan U. Koschmieder, Ph.D.  
Registration No. 50,238

NFO:SUK\la